Minutes of spin meeting 07/25/07

Alfredo presented his recent spin tracking for two RHIC lattices: one with $\beta^* = 1$m and one with $\beta^* = 10$m. The tracking was not for our real lattice with β squeeze along the energy ramp. Instead it was for a static lattice without β squeeze. There is no closed orbit distortion nor nonlinearities in both cases. The tracking of 12 particles on an eight πmm-mrad ellipse showed polarization loss for the case with $\beta^* = 1$m, not the other case. A closer look at polarization in one orbit turn reveals that spin kicks at several triplets. Thomas raised two questions. First he questioned if the stable spin direction at IRs are different for the two lattices. Second, $\beta^* = 1$m lattice at injection (not-realistic) would have β function of a few thousands meters at triplets. The spin effect of each quadrupole could be so strong that accuracy of the tracking may be an issue.

Alfredo also presented the preliminary results on the AGS helical snake angle calculation for various horizontal injection positions. The rotation angle changes about $\pm 0.2^\circ$ out of 40° for the 60mm range of horizontal injection position change. Thomas suggested to look at all four dimensions (x, x', y, y'). The vertical dimension may be more important as it drives intrinsic resonances. Alfredo is going to give a detail report next week.

Haixin